Space Weather Forecast

Issued on Wednesday, 09 November 2022 at 01:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate class flares (R1 - Minor radio blackouts). Very slight chance of G1/Minor storms days 1 and 2 (9th and 10th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with only one Common-class flare. There are currently five numbered sunspot regions and one unnumbered group on the visible disc. A large region in the east remains the most active and complex. Another spot in the far northeast is the second largest region, with a moderately sized mature spot, but is inactive. The only other moderately sized spot resides in the northwestern hemisphere. All other spots are relatively small and simple at this time. No Earth-directed Coronal Mass Ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind has been mostly at background levels, with a brief increase to slightly elevated early on the 8th. Total magnetic field strength, IMF, has been generally moderate to weak. The important north-south component, Bz was moderately negative, becoming weakly positive by the end of the period. Geomagnetic activity was mostly Quiet to Unsettled (Kp 1-3), with an Active interval (Kp 4) observed at 08/0600-0900 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be generally Low, with a chance of Moderate activity and a continuing very slight chance of High levels of activity.

Solar Wind / Geomagnetic Activity: Geomagnetic activity is expected to be mainly Quiet to Unsettled given generally slow-ambient solar winds, but there is a chance of Active intervals at times given any prolonged periods of negative Bz and approaching coronal hole high speed streams. There is a very slight chance of G1/Minor Storm intervals, mainly due to the possible arrival of one or more coronal hole high speed streams during days 1 and 2 (9th and 10th Nov). Becoming mostly Quiet to Unsettled on days 3 and 4 (11th and 12th) due to waning effects of coronal hole fast wind.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	10	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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